Post Survey

Field Operations and Compliance Report

Geophysical Survey Permit PRC 9307

Northern Channel Islands

February 3-8, 2018

Prepared March 5, 2018 by
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The following information is provided pursuant to the California State Lands Commission (CSLC) Geophysical Survey Permit PRC 9307, section 9a.

SURVEY INFORMATION

1. Description of Work Performed

   Geophysical surveys were conducted from the Scripps Institution of Oceanography vessel, R/V *Sally Ride*, periodically between February 3-8, 2018. The vessel departed from the Scripp's Marine Facility in San Diego Bay at 1100 on February 2 and transited to the Northern Channel Islands, arriving at 0700 on February 3. The cruise effort was primarily focused on sediment coring operations, and geophysical survey was conducted in some areas to guide the sediment sampling effort. The vessel left the Northern Channel Islands on February 7 and arrived back in San Diego Bay at 1600 on February 8.

   The geophysical instrument used during this effort was an Edgetech 512 sub-bottom profiler operated at 1-15 kHz. The instrument was deployed from the stern of the vessel and operated at ~5 m below the sea-surface.

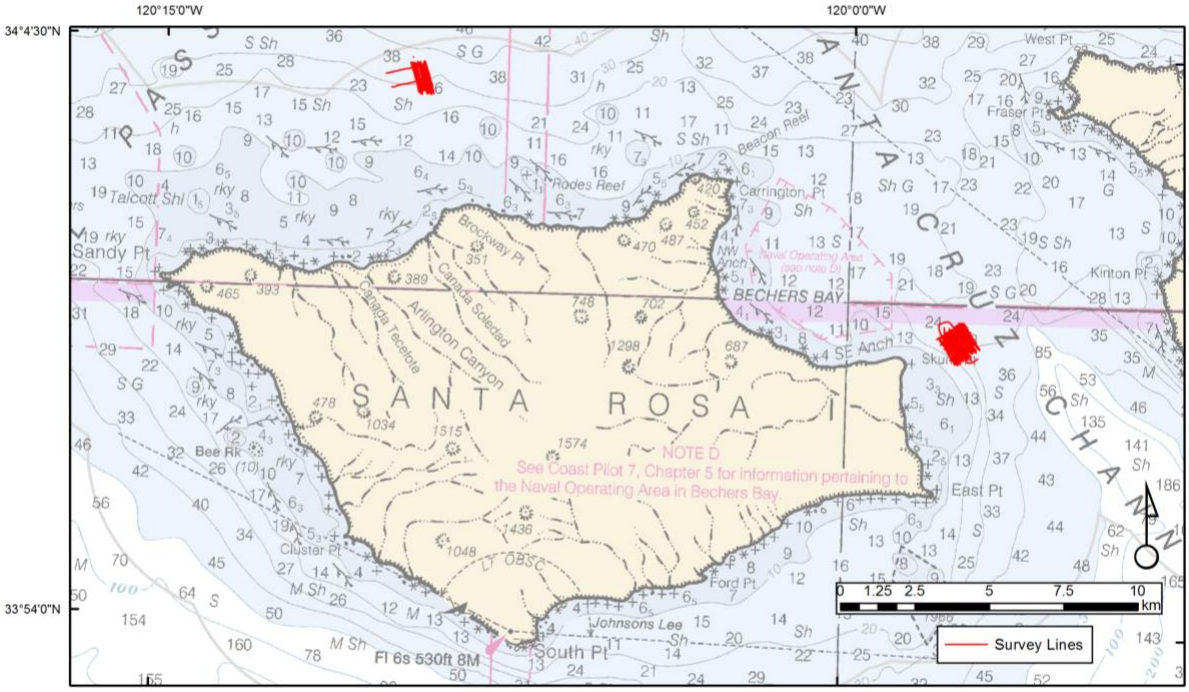
   A total of 74 survey lines, covering ~74 km, were run during this effort. The sub-bottom profiler imaged sediments beneath the seafloor to depths of ~40 m below seafloor. Data quality was consistently good.

2. Weather and Sea State During Operations

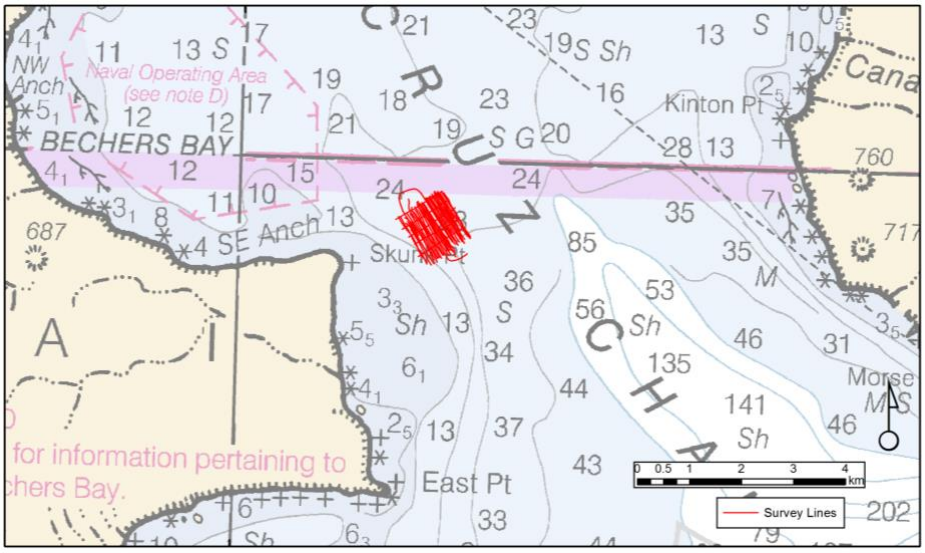
   Weather and sea state varied slightly during operations. The skies ranged from overcast to completely clear and wind varied from calm to ~15 knots (typically out of the Northwest). Swell ranged from 0 - 1m depending on the day and survey location. Overall, visibility was good to excellent. Fog was sometimes visible in the distance and did occasionally envelop the vessel. When fog was thick enough to limit visibility, surveys were not conducted.

   Sun glare, white-capping, and rough seas were not factors during this survey effort.

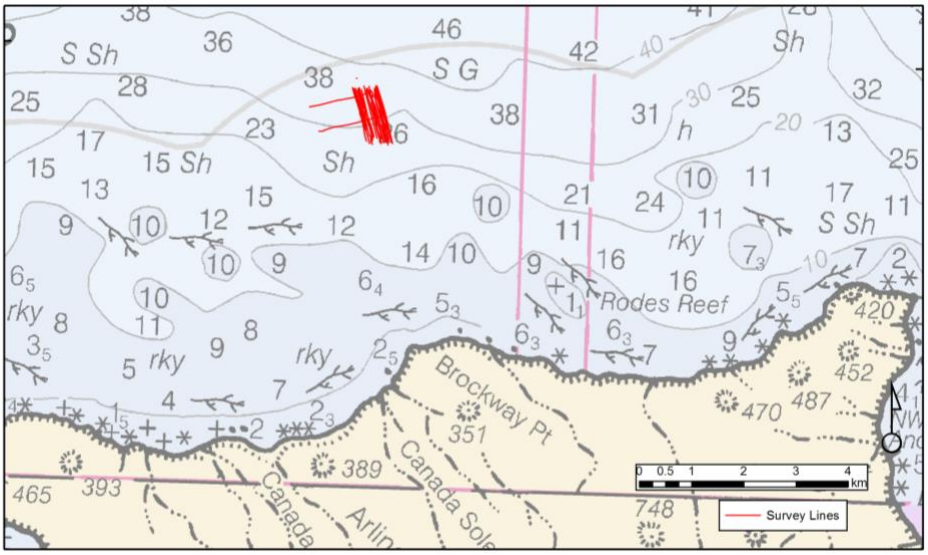
3. Survey Area Maps



Map 1: Overview of survey areas, north of Santa Rosa Island and in Santa Cruz Passage, east of Santa Rosa Island.



Map 2: Zoomed in view of survey area in Santa Cruz Passage, east of Santa Rosa Island.



Map 3: Zoomed in view of survey area north of Santa Rosa Island.

4. Survey Track Line Coordinates

Table 1:

Line #	Start Latitude	Start Longitude	End Latitude	End Longitude	Length (km)
CI2018B02L11	33.9893	-119.9649	33.9826	-119.9596	0.89
CI2018B02L12	33.9859	-119.9554	33.9906	-119.9656	1.99
CI2018B02L12a	33.9905	-119.9655	33.9868	-119.9625	0.49
CI2018B02L13	33.9859	-119.9545	33.9935	-119.9608	1.02
CI2018B02L14	33.9908	-119.9651	33.9823	-119.9585	1.13
CI2018B02L15	33.9856	-119.9549	33.9934	-119.9613	1.05
CI2018B02L16	33.9907	-119.9644	33.9830	-119.9585	1.02
CI2018B02L17	33.9927	-119.9604	33.9935	-119.9611	0.12
CI2018B02L17a	33.9854	-119.9542	33.9934	-119.9611	1.09
CI2018B02L18	33.9932	-119.9648	33.9831	-119.9583	1.30
CI2018B02L19	33.9913	-119.9641	33.9832	-119.9580	1.06
CI2018B02L20	33.9875	-119.9556	33.9936	-119.9605	0.82
CI2018B02L21	33.9918	-119.9642	33.9831	-119.9576	1.16
CI2018B02L22	33.9860	-119.9540	33.9938	-119.9604	1.06
CI2018B02L23	33.9913	-119.9634	33.9836	-119.9573	1.03
CI2018B02L24	33.9860	-119.9534	33.9939	-119.9600	1.07
CI2018B02L25	33.9919	-119.9635	33.9836	-119.9571	1.09
CI2018B02L26	33.9861	-119.9532	33.9941	-119.9600	1.10
CI2018B02L27	33.9926	-119.9631	33.9840	-119.9523	1.66
CI2018B02L28-1	33.9858	-119.9529	33.9940	-119.9595	1.10
CI2018B02L29	33.9922	-119.9628	33.9836	-119.9561	1.14

CI2018B02L30	33.9869	-119.9533	33.9944	-119.9595	1.01
CI2018B02L31	33.9918	-119.9622	33.9838	-119.9557	1.08
CI2018B02L32	33.9865	-119.9529	33.9947	-119.9595	1.11
CI2018B02L33	33.9921	-119.9620	33.9880	-119.9591	0.53
CI2018B02L34	33.9901	-119.9552	33.9947	-119.9588	0.61
CI2018B02L35	33.9921	-119.9616	33.9844	-119.9555	1.03
CI2018B02L36	33.9870	-119.9523	33.9944	-119.9583	1.00
CIS2018B02L01	33.9842	-119.9561	33.9928	-119.9629	1.16
CIS2018B02L02	33.9901	-119.9668	33.9820	-119.9606	1.08
CIS2018B02L03	33.9845	-119.9560	33.9924	-119.9624	1.07
CIS2018B02L04	33.9900	-119.9663	33.9821	-119.9606	1.03
CIS2018B02L05	33.9846	-119.9557	33.9919	-119.9619	1.01
CIS2018B02L06	33.9890	-119.9653	33.9821	-119.9591	0.96
CIS2018B02L07	33.9842	-119.9551	33.9926	-119.9621	1.16
CIS2018B02L08	33.9879	-119.9641	33.9818	-119.9597	0.79
CIS2018B02L09	33.9834	-119.9547	33.9926	-119.9617	1.24
CIS2018B02L10	33.9900	-119.9655	33.9827	-119.9592	1.01
CIS2018B02L37	33.9946	-119.9580	33.9878	-119.9527	0.90
CIS2018B02L37a	33.9877	-119.9525	33.9867	-119.9517	0.13
CIS2018B02L38	33.9885	-119.9532	33.9833	-119.9624	1.04
CIS2018B02L39	33.9853	-119.9633	33.9902	-119.9541	1.01
CIS2018B02L40	33.9930	-119.9569	33.9879	-119.9660	1.02
CIS2018B02L41	33.9896	-119.9674	33.9947	-119.9578	1.05
CIS2018B02L42	33.9919	-119.9551	33.9866	-119.9646	1.06
CIS2018B02L43	33.9945	-119.9576	33.9870	-119.9517	1.00
CIS2018B02L44	33.9887	-119.9544	33.9944	-119.9589	0.75
CIS2018B02L45	33.9944	-119.9576	33.9866	-119.9518	1.02
CIS2018B04L01	34.0687	-120.1583	34.0601	-120.1551	1.02
CIS2018B04L02	34.0631	-120.1592	34.0684	-120.1610	0.62
CIS2018B04L03	34.0684	-120.1580	34.0597	-120.1543	1.03
CIS2018B04L04	34.0639	-120.1596	34.0688	-120.1614	0.57
CIS2018B04L05	34.0691	-120.1580	34.0594	-120.1546	1.13
CIS2018B04L06	34.0597	-120.1582	34.0630	-120.1592	0.38
CIS2018B04L07-1	34.0687	-120.1579	34.0594	-120.1551	1.10
CIS2018B04L07	34.0704	-120.1607	34.0704	-120.1606	0.02
CIS2018B04L08	34.0593	-120.1576	34.0686	-120.1611	1.09
CIS2018B04L09	34.0675	-120.1569	34.0595	-120.1540	0.94
CIS2018B04L10-1	34.0614	-120.1579	34.0687	-120.1609	0.86
CIS2018B04L10	34.0598	-120.1570	34.0604	-120.1573	0.07
CIS2018B04L11	34.0687	-120.1569	34.0591	-120.1537	1.12

CIS2018B04L12	34.0602	-120.1560	34.0691	-120.1591	1.04
CIS2018B04L13	34.0690	-120.1567	34.0596	-120.1536	1.09
CIS2018B04L14	34.0605	-120.1575	34.0684	-120.1604	0.92
CIS2018B04L15	34.0687	-120.1586	34.0593	-120.1552	1.11
CIS2018B04L16	34.0654	-120.1590	34.0687	-120.1602	0.39
CIS2018B04L17	34.0690	-120.1566	34.0600	-120.1536	1.05
CIS2018B04L18	34.0596	-120.1569	34.0688	-120.1600	1.08
CIS2018B04L19	34.0693	-120.1565	34.0598	-120.1531	1.12
CIS2018B04L20	34.0603	-120.1567	34.0685	-120.1596	0.96
CIS2018B04L21	34.0692	-120.1563	34.0594	-120.1528	1.15
CIS2018B04L22	34.0591	-120.1569	34.0687	-120.1603	1.12
CIS2018B04L23	34.0682	-120.1580	34.0653	-120.1702	1.19
CIS2018B04L24	34.0611	-120.1681	34.0639	-120.1555	1.22

5. Dates and Times that Data Were Collected

   Geophysical survey data were collected during the following dates and times:

   February 4, 2018: 1400-1740 hrs

   February 5, 2018: 1133-1705 hrs

   February 6, 2018: 0900-1323 and 1530-1715 hrs

6. Environmental Hazards Encountered

   In some areas fishing buoys (crab pots) were encountered and course deviations were made to avoid entangling survey gear or damaging fishing gear.

7. Accident, Injury, Damage or Loss of Property

   There were no accidents, injuries, or loss of property during this cruise.

8. Other Information Requested by CSLC

   Please contact Jillian Maloney (San Diego State University) at (619) 594-6394 or David Ball (Bureau of Ocean Energy Management) at (805) 384-6340 if any additional information is needed.

BIOLOGICAL INFORMATION

1. Description of Marine Mammal, Reptile, and Bird Encounters

   Table 2 provides a list of marine mammals observed during transit and/or during survey operations. Observed marine mammals included the California sea lion (*Zalophus californianus*), bottle-nose dolphin (*Tursiops truncates*), and gray whale (*Eschrichtius robustus*). Whales were commonly observed transiting through the area between Santa

Rosa and Santa Cruz Islands. Whales were all either positively identified as gray whales, or were unidentifiable due to distance. The whale behaviors observed included sprays and flukes. Whales were observed as individuals or in groups of 2-3. Sea lions and dolphins were often observed in small groups (2-8 individuals) and seemed to be more common in the study area north of Santa Rosa Island. The observed sea lion behaviors observed were swimming/transiting, rolling, and periscoping. Dolphins were observed swimming/porpoising. Mammals were observed within the exclusion zone radius during surveys, which required shut down of the geophysical equipment (see details in the shut down section of this report).

Sea turtles are rarely seen in the Santa Barbara Channel and the northern Channel Islands. No sea turtles were observed, either in transit or during survey operations. Seabirds were observed frequently during transit and during survey operations.

Table 2: Marine Mammals Observed During Transit and/or During Survey Data Collection

Species	Transit or Survey	Frequency of Observation
California Sea Lion (*Zalophus californianus*)	Transit and Survey	Multiple sightings/multiple days
Bottle-Nosed Dolphin (*Tursiops truncates*)	Transit and Survey	Multiple sightings/multiple days
Gray Whale (*Eschrichtius robustus*)	Transit and Survey	Multiple sightings/multiple days

2. Description of Shut Downs or Slow Downs

   Over the survey period, the survey equipment was shut down 20 times. During each shut-down, the equipment remained off until the MWMs confirmed that the observed mammals had left the exclusion zone. The sub-bottom profiler was then started at 10 percent power and ramped up to continue the survey. On the morning of February 5, 2018, fog was encountered in the survey area prior to deployment of the instruments. The MWMs and crew decided to delay the survey until visibility improved. After ~ 2 hrs, the visibility had improved and survey began.

   The captain slowed the vessel on a few occasions, during transit back and forth from the survey areas, to ascertain the location and direction of distant whales and readjusted course as needed to avoid close approaches of whales during transit.

3. Observations of Pinnipeds at Haul-Out Sites

   No pinnipeds were seen on beaches near survey areas, possibly because none of the sampling areas were close enough to shore for easy identification.

4. Collision Events
   There were no collision events during this survey effort.

5. Implementation and Compliance Verification
   See completed copy of the Mitigation Monitoring Plan attached.

6. Marine Wildlife Monitor Evaluation of Mitigation Measures Performed
   The R/V Sally Ride was an excellent platform for marine wildlife monitoring. The upper deck and bridge allowed for 360 degree views of the operation for the primary observer. The second observer was stationed closer to the stern of the vessel where the instrument was towed and had an unobstructed view of ~240 degrees towards the stern. The captain and survey crew were exceptionally responsive during the entire survey effort and specifically during the shut-down events. They also remained vigilant and greatly supplemented the observation effort when surveys were underway.

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
Air Quality and Greenhouse Gas (GHG) Emissions (MND Section 3.3.3)						
MM AIR-1: Engine Tuning, Engine Certification, and Fuels. The following measures will be required to be implemented by all Permittees under the Offshore Geophysical Permit Program (OGPP), as applicable depending on the county offshore which a survey is being conducted. Pursuant to section 93118.5 of CARB's Airborne Toxic Control Measures, the Tier 2 engine requirement applies only to diesel-fueled vessels.	All Counties: Maintain all construction equipment in proper tune according to manufacturers' specifications; fuel all off-road and portable diesel-powered equipment with California Air Resources Board (CARB)-certified motor vehicle diesel fuel limiting sulfur content to 15 parts per million or less (CARB Diesel).	Daily emissions of criteria pollutants during survey activities are minimized.	Determine engine certification of vessel engines. Review engine emissions data to assess compliance, determine if changes in tuning or fuel are required.	OGPP permit holder and contract vessel operator; California State Lands Commission (CSLC) review of Final Monitoring Report.	Prior to, during, and after survey activities. Submit Final Monitoring Report after completion of survey activities.	3/5/18
	Los Angeles and Orange Counties: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner; the survey shall be operated such that daily NO_x emissions do not exceed 100 pounds based on engine certification emission factors. This can be accomplished with Tier 2 engines if daily fuel use is 585 gallons or less, and with Tier 3 engines if daily fuel use is 935 gallons or less.		Verify that Tier 2 or cleaner engines are being used. Calculate daily NO_x emissions to verify compliance with limitations.			
	San Luis Obispo County: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner, accomplished with Tier 2 engines if daily fuel use is 585 gallons or less; all diesel equipment shall not idle for more than 5 minutes; engine use needed to maintain position in the water is not considered idling; diesel idling within 300 meters (1,000 feet) of sensitive receptors is not permitted; use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane or biodiesel.		Verify that Tier 2 or cleaner engines are being used. Inform vessel operator(s) of idling limitation. Investigate availability of alternative fuels.			
	Santa Barbara County: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner, accomplished with Tier 2 engines if daily fuel use is 790 gallons or less.		Verify that Tier 2 or cleaner engines are being used. Investigate availability of alternative fuels.			3/5/18
	Ventura County: Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane or biodiesel.		Investigate availability of alternative fuels.			

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
MM BIO-1: Marine Mammal and Sea Turtle Presence – Current Information.	All State waters; prior to commencement of survey operations, the geophysical operator shall: (1) contact the National Oceanic and Atmospheric Administration Long Beach office staff and local whale-watching operations and shall acquire information on the current composition and relative abundance of marine wildlife offshore, and (2) convey sightings data to the vessel operator and crew, survey party chief, and onboard Marine Wildlife Monitors (MWMs) prior to departure. This information will aid the MWMs by providing data on the approximate number and types of organisms that may be in the area.	No adverse effects to marine mammals or sea turtles due to survey activities are observed.	Document contact with appropriate sources. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder; Inquiry to NOAA and local whale watching operators.	Prior to survey.	3/5/18
MM BIO-2: Marine Wildlife Monitors (MWMs).	Except as provided in section 7(h) of the General Permit, a minimum of two (2) qualified MWMs who are experienced in marine wildlife observations shall be onboard the survey vessel throughout both transit and data collection activities. The specific monitoring, observation, and data collection responsibilities shall be identified in the Marine Wildlife Contingency Plan required as part of all Offshore Geophysical Permit Program permits. Qualifications of proposed MWMs shall be submitted to the National Oceanic and Atmospheric Administration (NOAA) and CSLC at least twenty-one (21) days in advance of the survey for their approval by the agencies. Survey operations shall not commence until the CSLC approves the MWMs.	Competent and professional monitoring or marine mammals and sea turtles; compliance with established monitoring policies.	Document contact with and approval by appropriate agencies. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Prior to survey.	3/5/18
MM BIO-3: Safety Zone Monitoring.	Onboard Marine Wildlife Monitors (MWMs) responsible for observations during vessel transit shall be responsible for monitoring during the survey equipment operations. All visual monitoring shall occur from the highest practical vantage point aboard the survey vessel; binoculars shall be used to observe the surrounding area, as appropriate. The MWMs will survey an area (i.e., safety or exclusion zone) based on the equipment used, centered on the sound source (i.e., vessel, towfish), throughout time that the survey equipment is operating. Safety zone radial distances, by equipment type, include:	No adverse effects to marine mammals or sea turtles due to survey activities are observed; compliance with established safety zones.	Compliance with permit requirements (observers); compliance with established safety zones. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Prior to survey.	3/5/18

<table>
<tr><th>Mitigation Measure (MM)</th><th>Location and Scope of Mitigation</th><th>Effectiveness Criteria</th><th>Monitoring or Reporting Action</th><th>Responsible Party</th><th>Timing</th><th>Implementation Date(s) and Initials</th></tr>
<tr><td></td><td>
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<tr><th>Equipment Type</th><th>Safety Zone (radius, m)</th></tr>
<tr><td>Single Beam Echosounder</td><td>50</td></tr>
<tr><td>Multibeam Echosounder</td><td>500</td></tr>
<tr><td>Side-Scan Sonar</td><td>600</td></tr>
<tr><td>Subbottom Profiler</td><td>100</td></tr>
<tr><td>Boomer System</td><td>100</td></tr>
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If the geophysical survey equipment is operated at or above a frequency of 200 kilohertz (kHz), safety zone monitoring and enforcement is not required; however, if geophysical survey equipment operated at a frequency at or above 200 kHz is used simultaneously with geophysical survey equipment less than 200 kHz, then the safety zone for the equipment less than 200 kHz must be monitored. The onboard MWMs shall have authority to stop operations if a mammal or turtle is observed within the specified safety zone and may be negatively affected by survey activities. The MWMs shall also have authority to recommend continuation (or cessation) of operations during periods of limited visibility (i.e., fog, rain) based on the observed abundance of marine wildlife. Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation shall be completed by the onboard MWMs. During operations, if an animal's actions are observed to be irregular, the monitor shall have authority to recommend that equipment be shut down until the animal moves further away from the sound source. If irregular behavior is observed, the equipment shall be shut-off and will be restarted and ramped-up to full power, as applicable, or will not be started until the animal(s) is/are outside of the safety zone or have not been observed for 15 minutes.

For nearshore survey operations utilizing vessels that lack the personnel capacity to hold two (2) MWMs aboard during survey operations, at least twenty-one (21) days prior to the commencement of survey activities, the Permittee may petition the CSLC to conduct survey operations with one (1) MWM aboard. The CSLC will consider such authorization on a case-by-case basis and</td><td></td><td></td><td></td><td></td><td></td></tr>
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Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
	factors the CSLC will consider will include the timing, type, and location of the survey, the size of the vessel, and the availability of alternate vessels for conducting the proposed survey. CSLC authorizations under this subsection will be limited to individual surveys and under any such authorization; the Permittee shall update the MWCP to reflect how survey operations will occur under the authorization.					
MM BIO-4: Limits on Nighttime OGPP Surveys.	All State waters; nighttime survey operations are prohibited under the OGPP, except as provided below. The CSLC will consider the use of single beam echosounders and passive equipment types at night on a case-by-case basis, taking into consideration the equipment specifications, location, timing, and duration of survey activity.	No adverse effects to marine mammals or sea turtles due to survey activities are observed.	Presurvey request for nighttime operations, including equipment specifications and proposed use schedule. Document equipment use. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Approval required before survey is initiated. Monitoring Report following comple-tion of survey.	3/5/18 (None at night)
MM BIO-5: Soft Start.	All State waters; the survey operator shall use a "soft start" technique at the beginning of survey activities each day (or following a shut down) to allow any marine mammal that may be in the immediate area to leave before the sound sources reach full energy. Surveys shall not commence at nighttime or when the safety zone cannot be effectively monitored. Operators shall initiate each piece of equipment at the lowest practical sound level, increasing output in such a manner as to increase in steps not exceeding approximately 6 decibels (dB) per 5-minute period. During ramp-up, the Marine Wildlife Monitors (MWMs) shall monitor the safety zone. If marine mammals are sighted within or about to enter the safety zone, a power-down or shut down shall be implemented as though the equipment was operating at full power. Initiation of ramp-up procedures from shut down requires that the MWMs be able to visually observe the full safety zone.	No adverse effects to marine mammals or sea turtles due to survey activities are observed.	Compliance with permit requirements (observers); compliance with safe start procedures. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Imme-diately prior to survey.	3/5/18

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
MM BIO-6: Practical Limitations on Equipment Use and Adherence to Equipment Manufacturer's Routine Maintenance Schedule.	All State waters; geophysical operators shall follow, to the maximum extent possible, the guidelines of Zykov (2013) as they pertain to the use of subbottom profilers and side-scan sonar, including: • Using the highest frequency band possible for the subbottom profiler; • Using the shortest possible pulse length; and • Lowering the pulse rate (pings per second) as much as feasible. Geophysical operators shall consider the potential applicability of these measures to other equipment types (e.g., boomer). Permit holders will conduct routine inspection and maintenance of acoustic-generating equipment to ensure that low energy geophysical equipment used during permitted survey activities remains in proper working order and within manufacturer's equipment specifications. Verification of the date and occurrence of such equipment inspection and maintenance shall be provided in the required presurvey notification to CSLC.	No adverse effects to marine mammals or sea turtles due to survey activities are observed.	Document initial and during survey equipment settings. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Imme-diately prior to and during survey.	3/5/18
MM BIO-7: Avoidance of Pinniped Haul-Out Sites.	The Marine Wildlife Contingency Plan (MWCP) developed and implemented for each survey shall include identification of haul-out sites within or immediately adjacent to the proposed survey area. For surveys within 300 meters (m) of a haul-out site, the MWCP shall further require that: • The survey vessel shall not approach within 91 m of a haul-out site, consistent with National Marine Fisheries Service (NMFS) guidelines; • Survey activity close to haul-out sites shall be conducted in an expedited manner to minimize the potential for disturbance of pinnipeds on land; and • Marine Wildlife Monitors shall monitor pinniped activity onshore as the vessel approaches, observing and reporting on the number of pinnipeds potentially disturbed (e.g., via head lifting, flushing into the water). The purpose of such reporting is to provide CSLC and California Department of Fish and Wildlife (CDFW) with information regarding potential disturbance associated with OGPP surveys.	No adverse effects to pinnipeds at haul outs are observed.	Document pinniped reactions to vessel presence and equipment use. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Monitoring Report following comple-tion of survey.	3/5/18

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
MM BIO-8: Reporting Requirements – Collision.	All State waters; if a collision with marine mammal or reptile occurs, the vessel operator shall document the conditions under which the accident occurred, including the following: • Vessel location (latitude, longitude) when the collision occurred; • Date and time of collision; • Speed and heading of the vessel at the time of collision; • Observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision; • Species of marine wildlife contacted (if known); • Whether an observer was monitoring marine wildlife at the time of collision; and, • Name of vessel, vessel owner/operator, and captain officer in charge of the vessel at time of collision. After a collision, the vessel shall stop, if safe to do so; however, the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then immediately communicate by radio or telephone all details to the vessel's base of operations, and shall immediately report the incident. Consistent with Marine Mammal Protection Act requirements, the vessel's base of operations or, if an onboard telephone is available, the vessel captain him/herself, will then immediately call the National Oceanic and Atmospheric Administration (NOAA) Stranding Coordinator to report the collision and follow any subsequent instructions. From the report, the Stranding Coordinator will coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate. From the vessel's base of operations, a telephone call will be placed to the Stranding Coordinator, NOAA National Marine Fisheries Service (NMFS), Southwest Region, Long Beach, to obtain instructions. Although NOAA has primary responsibility for marine mammals in both State and Federal waters, the California Department of Fish and Wildlife (CDFW) will also be advised that an incident has occurred in State waters affecting a protected species.	No adverse effects to marine mammals or sea turtles due to survey activities are observed.	Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Monitoring Report following comple-tion of survey.	3/15/18

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
MM BIO-9: Limitations on Survey Operations in Select Marine Protected Areas (MPAs).	All MPAs; prior to commencing survey activities, geophysical operators shall coordinate with the CLSC, California Department of Fish and Wildlife (CDFW), and any other appropriate permitting agency regarding proposed operations within MPAs. The scope and purpose of each survey proposed within a MPA shall be defined by the permit holder, and the applicability of the survey to the allowable MPA activities shall be delineated by the permit holder. If deemed necessary by CDFW, geophysical operators will pursue a scientific collecting permit, or other appropriate authorization, to secure approval to work within a MPA, and shall provide a copy of such authorization to the CSLC as part of the required presurvey notification to CSLC. CSLC, CDFW, and/or other permitting agencies may impose further restrictions on survey activities as conditions of approval.	No adverse effects to MPA resources due to survey activities are observed.	Monitor reactions of wildlife to survey operations; report on shutdown conditions and survey restart. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder; survey permitted by CDFW.	Prior to survey.	3/5/18
MM HAZ-1: Oil Spill Contingency Plan (OSCP) Required Information.	Permittees shall develop and submit to CSLC staff for review and approval an OSCP that addresses accidental releases of petroleum and/or non-petroleum products during survey operations. Permittees' OSCPs shall include the following information for each vessel to be involved with the survey: • Specific steps to be taken in the event of a spill, including notification names, phone numbers, and locations of: (1) nearby emergency medical facilities, and (2) wildlife rescue/response organizations (e.g., Oiled Wildlife Care Network); • Description of crew training and equipment testing procedures; and • Description, quantities, and location of spill response equipment onboard the vessel.	Reduction in the potential for an accidental spill. Proper and timely response and notification of responsible parties in the event of a spill.	Documentation of proper spill training. Notification of responsible parties in the event of a spill.	OGPP permit holder and contract vessel operator.	Prior to survey.	3/5/18
MM HAZ-2: Vessel fueling restrictions.	Vessel fueling shall only occur at an approved docking facility. No cross vessel fueling shall be allowed.	Reduction in the potential for an accidental spill.	Documentation of fueling activities.	Contract vessel operator.	Following survey.	3/5/18
MM HAZ-3: OSCP equipment and supplies.	Onboard spill response equipment and supplies shall be sufficient to contain and recover the worst-case scenario spill of petroleum products as outlined in the OSCP.	Proper and timely response in the event of a spill.	Notification to CSLC of onboard spill response equipment/supplies inventory, verify	Contract vessel operator.	Prior to survey.	3/5/18

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
			ability to respond to worst-case spill.			
MM HAZ-1: Oil Spill Contingency Plan (OSCP) Required Information.	Outlined under **Hazards and Hazardous Materials** (above)					3/5/18
MM HAZ-2: Vessel fueling restrictions.	Outlined under **Hazards and Hazardous Materials** (above)					3/5/18
MM HAZ-3: OSCP equipment and supplies.	Outlined under **Hazards and Hazardous Materials** (above)					3/5/18
MM BIO-9: Limitations on Survey Operations in Select MPAs.	Outlined under **Biological Resources** (above)					3/5/18
MM REC-1: U.S. Coast Guard (USCG), Harbormaster, and Dive Shop Operator Notification.	All California waters where recreational diving may occur; as a survey permit condition, the CSLC shall require Permittees to provide the USCG with survey details, including information on vessel types, survey locations, times, contact information, and other details of activities that may pose a hazard to divers so that USCG can include the information in the Local Notice to Mariners, advising vessels to avoid potential hazards near survey areas. Furthermore, at least twenty-one (21) days in advance of in-water activities, Permittees shall: (1) post such notices in the harbormasters' offices of regional harbors; and (2) notify operators of dive shops in coastal locations adjacent to the proposed offshore survey operations.	No adverse effects to recreational divers from survey operations.	Notify the USCG, local harbormasters, and local dive shops of planned survey activity. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Prior to survey.	3/5/18

Mitigation Measure (MM)	Location and Scope of Mitigation	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing	Implementation Date(s) and Initials
MM FISH-1: U.S. Coast Guard (USCG) and Harbormaster Notification.	All California waters; as a survey permit condition, the CSLC shall require Permittees to provide the USCG with survey details, including information on vessel types, survey locations, times, contact information, and other details of activities that may pose a hazard to mariners and fishers so that USCG can include the information in the Local Notice to Mariners, advising vessels to avoid potential hazards near survey areas. Furthermore, at least twenty-one (21) days in advance of in-water activities, Permittees shall post such notices in the harbormasters' offices of regional harbors.	No adverse effects to commercial fishing gear in place.	Notify the USCG and local harbormasters of planned survey activity. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Prior to survey.	3/5/18
MM FISH-2: Minimize Interaction with Fishing Gear.	To minimize interaction with fishing gear that may be present within a survey area: (1) the geophysical vessel (or designated vessel) shall traverse the proposed survey corridor prior to commencing survey operations to note and record the presence, type, and location of deployed fishing gear (i.e., buoys); (2) no survey lines within 30 m (100 feet) of observed fishing gear shall be conducted. The survey crew shall not remove or relocate any fishing gear; removal or relocation shall only be accomplished by the owner of the gear upon notification by the survey operator of the potential conflict.	No adverse effects to commercial fishing gear in place.	Visually observe the survey area for commercial fishing gear. Notify the gear owner and request relocation of gear outside survey area. Submit Final Monitoring Report after completion of survey activities.	OGPP permit holder.	Imme-diately prior to survey (prior to each survey day).	3/5/18
MM FISH-1: USCG and Harbormaster Notification.	Outlined under **Commercial and Recreational Fisheries** (above)					3/5/18

Acronyms/Abbreviations: CARB = California Air Resources Board; CDFW = California Department of Fish and Wildlife; CSLC = California State Lands Commission; dB = decibels; kHz = kilohertz; MPA = Marine Protected Area; MWCP = Marine Wildlife Contingency Plan; MWM = Marine Wildlife Monitor; m= meter(s); NOAA = National Oceanic and Atmospheric Administration; NO_x = Nitrogen Oxide; OGPP = Offshore Geophysical Permit Program; OSCP = Oil Spill Contingency Plan; USCG = U.S. Coast Guard

Marine Mammal Observer Record
Geophysical Surveys

Date: 2/4/2018	Observer(s): Dalia Rodriguez Jillian Maloney
Vessel: R/V Sally Ride	
Observer Vessel Location(s): Bridge + Main Deck	
Survey Equipment in Use: Edgetech 512 Chirp	
Frequency Range: 1-16 kHz	
Max Source Sound Level:	
Exclusion Zone Radius: 220m	
General Survey Location Description: E. Santa Rosa Island	
Weather/Viewing Conditions: Sunny, clear, light wind	

Instrument Depth(s) ~5m	Bottom Depth Range: 20-40 m
Start Lat/Long*: 33° 58.9101' 119° 57.5623'	End Lat/Long*:
Start Time: 1400	End Time:

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
Gray Whale	1	over 100m	2:10PM	33° lat, 119°57.49W	spray
Gray whale	1	over 100m	2:15PM	33°59.04N 119°57.37W	spray
Gray Whale	1	over 100m	2:24PM	33°59.31N 119°57.59W	spray
★ Dolphins	3-4	~75m	3:05PM	33°59.24N 119°57.50W	jump
whale	1	over 100m	3:12PM	33°59.53N 119°57.87W	spray
whale	1	over 100m	3:17PM	33°59.39N 119°57.96W	spray
whale	1	over 100m	3:20PM	33°59.19N 119°57.62W	spray
whale	1	~900m	3:25PM	33°58.98N 119°57.66W	spray

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes:

★ - stopped chirping

Marine Mammal Observer Record
Geophysical Surveys

see previous page

Date: 2/4 cont'd	Observer(s):
Vessel:	
Observer Vessel Location(s):	
Survey Equipment in Use:	
Frequency Range:	
Max Source Sound Level:	
Exclusion Zone Radius:	
General Survey Location Description:	
Weather/Viewing Conditions:	

Instrument Depth(s)	Bottom Depth Range:
Start Lat/Long*:	End Lat/Long*:
Start Time:	End Time: 1740

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
whale	1	~900m	3:29PM	33°58.997N	spray
				119°57.742W	
whale	1	over 100m	3:52 PM	33°59.35N	spray
				119°57.93W	
dolphins	2-3	~500m	4:10PM	33°59.81N	jump
				119°57.44W	
seal	2	~90m	4:55PM	33°59.304	swimming
				119°58.328	
whale	1	~600m	17:16	33°59.330	spray
				119°58.011	

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes:

- shut down

Marine Mammal Observer Record
Geophysical Surveys

Date: 2/5/18	Observer(s): Heather Webb, Alex Lewis
Vessel: Sally Ride	
Observer Vessel Location(s): Bridge + Main Deck	
Survey Equipment in Use: Edge Tech 512 chirp	
Frequency Range: 1-16 kHz	
Max Source Sound Level:	
Exclusion Zone Radius: 220 m	
General Survey Location Description: E. Santa Rosa Island	
Weather/Viewing Conditions: Foggy	

Instrument Depth(s) ~5 m	Bottom Depth Range:
Start Lat/Long*: 33°59.0842 119°57.3344	End Lat/Long*:
Start Time: ~~1057~~	End Time:

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
	N/A				

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes: Survey cancelled due to fog.

Marine Mammal Observer Record
Geophysical Surveys

Date: 2/5/18	Observer(s): Dalia Rodriguez + Amy Gusick
Vessel: Sally Ride	
Observer Vessel Location(s): Bridge + Main Deck	
Survey Equipment in Use: Edgetech 512 Chirp	
Frequency Range: 1-16 kHz	
Max Source Sound Level:	
Exclusion Zone Radius: 120m	
General Survey Location Description: offshore Skunk Pt., Santa Rosa Island	
Weather/Viewing Conditions: cloudy, marine layer, slight wind	

Instrument Depth(s) 15 m	Bottom Depth Range:
Start Lat/Long*: 33° 59.1762 N	End Lat/Long*:
Start Time: 1133 119° 57.3691 W	End Time: 1705

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
whale	2	~700m	1:00PM	33°59.11N	spray
				119°57.28W	
whale	1	~900m	1:03 PM	33°59.43N	spray, tail
				119°57.55W	
whale	2-3	over 100m	1:30PM	33°59.63N	spray, tail
				119°57.86W	
whale	1	~700m	2:15PM	33°59.05N	spray
				119°57.182W	
• Seals	3-4	<100m	4:06pm	33°59.17N	swimming
				119°57.15W	
• Dolphins	1	<100m		33°59.25N	swimming
				119°57.46W	
• Seals	2-3	~50m	4:30pm	33°59.08N	swimming
				119°57.14W	
• seal	1	~40m	16:51	33° 59.099'	swimming
				119°57.083'	

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes: • shutdown

Marine Mammal Observer Record
Geophysical Surveys

Date: 02/06/18	Observer(s): Howasta Tabiry & Alex Laws
Vessel: R/V Sally Ride	
Observer Vessel Location(s): Bridge & main deck	
Survey Equipment in Use: Edgetech 512 Chirp	
Frequency Range: 1-16 KHz	
Max Source Sound Level:	
Exclusion Zone Radius: 220 m	
General Survey Location Description: N. Santa Rosa Island	
Weather/Viewing Conditions: cloudy, marine layer	
Instrument Depth(s)	Bottom Depth Range:
Start Lat/Long*: 34°03.7806 N	End Lat/Long*:
Start Time: 120°09.5358 W	End Time: ~~1215~~ 1225

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
dolphins	1-2	<100 m	9:16	34°03.4712	swimming
				120°09.3020	
seal	3	~50 m	9:19	34°03.5763	swimming
				120°09.4602	
whale	1	<300m	9:37	34°03.9901	spray/fantail
				120°09.2591	
seals	3	~50 m	9:42	34°03.7064	swimming
				120°09.3431	
dolphins	3	~40m	10:04	34°03.10610	swimming
				120°09.5270	
whale	1	<100 m	10:04	34°03.10610	swimming
				120°09.5270	
sea lion	~8	<350m	10:13	34°04.0826	swimming
				120°09.4300	
whale	1	<300m	10:20	34°03.5171	spray
				120°09.2893	
whale	1	~240m	10:27	34°03.8352	spray/tail
				120°09.5647	

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes: • stopped chirping

Marine Mammal Observer Record
Geophysical Surveys

Date: 2/06/2018 continued	Observer(s): Alex Laws / Plewesta Tahary
Vessel: RV Sally Ride	
Observer Vessel Location(s): Bridge + Main Deck	
Survey Equipment in Use: Edgetech 512 Chirp	
Frequency Range: 1-16 KHz	
Max Source Sound Level:	
Exclusion Zone Radius: 220 m	
General Survey Location Description: N. Santa Rosa Island	
Weather/Viewing Conditions: Cloudy, marine layer	
Instrument Depth(s)	Bottom Depth Range:
Start Lat/Long*: 34°03.7506 N	End Lat/Long*:
10am Start Time: 120°09.5358 W	End Time:

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
Whale	1	600 m	10:30	34°04.2366	Spray
				120°09.6953	
Whale	1	250m	10:42	34°03.4646	tail / spray
				120°09.2712	
whale	1	400m	10:45	34°03.5642	spray
				120°09.4153	
• Sea lions	3-6	50m	10:46	34°03.6551	Spray
				120°09.4648	
Whale	1	500m	11:02	34°03.4613	tail
				120°09.2712	
• Dolphins	3-6	145m	11:08	34°03.9946	Swimming
				120°09.7779	
• Sea otters (?)	~7	150 m	11:26	34°03.6098	swimming
or sea lions				120°09.9495	
• Seal	1	50 m	11:32	34°04.1965	~~...~~ jumping
				120°09.6262	

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes: • Stopping Chirp

Marine Mammal Observer Record
Geophysical Surveys

Date: continued 2/06/2019	Observer(s): Alex Laws / Howasta Tkhing
Vessel: RV Sally Ride	
Observer Vessel Location(s): Bridge / Main Deck	
Survey Equipment in Use: Edgetech 512 Chirp	
Frequency Range: 1-16 KHz	
Max Source Sound Level:	
Exclusion Zone Radius: 220 m	
General Survey Location Description: N- Santa Rosa Island	
Weather/Viewing Conditions: partly cloudy	

Instrument Depth(s)	Bottom Depth Range:
Start Lat/Long*: 34° 09, 7506 N	End Lat/Long*:
10am Start Time: 120° 09. 535 W	End Time:

Marine Mammal Sightings

Species	Number	Distance	Time	Location	Behavior
seal	3	75 m	11:42	34° 03.4626	tails
				120° 09. 3577	
Whales	3	250 m	11:50	34° 04.0875	blowholes
				120° 09.6039	
Sea lions	5	50 m	11:59	34° 03. 5593	
				120° 09 [illegible]	swimming
Sea lion	1	50 m	12:05	34° 03 5105 N	
				120° 09.41 W	Swimming
Sea lion	1	>100 m	12:18	34° 0926 N	
				120° 0950 W	Swimming
Whale	1	>100 m	12:25	34° 03.44 N	
				120° 09.27 W	blowholes
sea lion	1	10 m	12:26	34° 03 46 N	
				120 09.35 W	swimming/jumping
sea lion	1	>100 m	12:40	34° 03. 92 N	
				120° 09.28 W	
Whales	2	>100 m	12:44	34° 03.50 N 120° 09.16 W	Spray

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes:

- stop Chirp

Marine Mammal Observer Record
Geophysical Surveys

continued

Date: 2/06/18	Observer(s): Alex Laws / Honesta Tahury
Vessel: RV Sally Ryde	
Observer Vessel Location(s): Bridge + Main Deck	
Survey Equipment in Use: Edgetech SR2 Chirp	
Frequency Range: 1 - 16 KHz	
Max Source Sound Level:	
Exclusion Zone Radius: 220m	
General Survey Location Description:	
Weather/Viewing Conditions: Partly Cloudy	

Instrument Depth(s)	Bottom Depth Range:
Start Lat/Long*:	End Lat/Long*:
Start Time:	End Time:

Marine Mammal Sightings

	Species	Number	Distance	Time	Location	Behavior
*	Sea lions	3	20m	12:48	34°03.53N	swimming
					120°07.32W	
*	Whale	1	1,000m	4:21	33°59.27N	
					119°57.70W	spray

*One data sheet may be used for multiple survey lines. For multiple survey lines, attach track line map for the period of survey activity covered by this data sheet.

Notes:

* stopped chirp

* moved survey locations → now east of SRI

33° 59.18 N

119° 57.37 W